Appendix

1. The questions in CHARLS and the criteria used to determine work status:

FA001: Did you engage in agricultural work (including farming, forestry, fishing, and husbandry for your own family or others) for more than 10 days in the past year?

FA002: Did you work for at least one hour last week? We consider any of the following activities to be work: earn a wage, run your own business and unpaid family business work, et al. Work does not include doing your own housework or doing activities without pay, such as voluntary work.

If respondent said 'yes' on either question FA001 or FA002, then she or he was considered as 'working'. If the answers on both questions were 'no', then the respondent needed to answer the following two questions:

FA005: Do you expect to go back to this job at a definite time in the future or within 6 months?

FA006: Do you still receive any salary from this job?

If respondent said 'yes' on either question FA005 or FA006, then she or he was considered as 'working'.

If respondent said 'no' on all four questions, she or he was considered as 'not working'.

Li X, *et al. BMJ Open* 2019; 9:e024115. doi: 10.1136/bmjopen-2018-024115

2. Variable definition

Variables	Definition
Age	Continuous variable and measured in years
Education	Four categories: illiterate, lower than elementary school, elementary school graduate, and middle school or higher
Married	Married vs. not
Household expenditures monthly	Monthly household expenditures on food, utilities, household items, clothing, medical care, taxes, etc.
Self-rated Health Status	Three categories: good (reported health status equal to or better than good health), fair (reported health status as fair), and poor (reported health status equal to or worse than poor health)
Disable	Yes vs. no; where yes if having any of the five disabilities: physical disabilities, brain damage/mental retardation, vision problems, hearing problems, speech impediment
No. of chronic diseases (range 0-14)	Chronic diseases considered include 1.hypertension; 2.dyslipidemia; 3.diabetes; 4.cancer; 5.chronic lung disease; 6.liver disease; 7.heart problems; 8.stroke; 9.kidney disease; 10.stomach or other digestive disease; 11.emotional, nervous, or psychiatric problems; 12.memory-related disease; 13.arthritis or rheumatism; and 14.asthma.
Functional limitations (range 0-18)	Functional limitations are assessed in three domains: 7 items measuring physical functions (1.running/jogging about 1 km; 2.getting up from a chair; 3.climbing several flights of stairs; 4.stooping, kneeling or crouching; 5.reaching or extending arms; 6.lifting or carrying over 5 kg; and 7.picking up a small coin), 6 items measuring basic activities of daily living (BADLs) (1.dressing; 2.bathing; 3.eating; 4.getting in/out of bed; 5.using the toilet; and 6.controlling urination and defecation), and 5 items measuring instrumental ADL (IADLs) (1.doing household chores; 2.preparing hot meals; 3.shopping for groceries; 4.managing money; and 5.taking medications) (Hu et al., 2015)[1]. Each item is measured using a 4-likert scale, "1= No, I don't have any difficulty", "2=I have difficulty but can still do it", "3= Yes, I have difficulty and need help" and "4= I can not do it". The functional limitations are scored as a total number of items with answers at scale 3 or 4 for functional limitations and at scale > 1 for BADL and ADL.

[1] Hu L, Lv X, Zhou S, *et al.* Socio-Demographic Determinants, Physical Health Status, and Depression Associated with Functional Limitations Among Older Chinese Adults. Ageing International 2015; 40: 311–326.

3. Econometric model specifications

We used Model I, including 2011 health status in the model, as an example to show our model specifications.

Modeling work exit

We used Probit model for work exit in 2013, and ordered Probit model for health status in 2011. For each individual i, let y_i^w be labour force participation observed in 2013, $\mathbf{x}_i$ be the vector of exogenous factors (i.e., age, education, marriage status, and log transformed expenditures in 2011), $\mathbf{z}_i$ be the vector of detailed health measures (disability condition, number of chronic diseases, the number of total functional limitations) in 2011 and $\boldsymbol{H}_i$ be the SRH in 2011. Then our models were specified as:

$$y_i^{w*} = \boldsymbol{H}_i'\boldsymbol{\beta_h^w} + \mathbf{x}_i'\boldsymbol{\beta_x^w} + u_i^w \quad (1)$$

$$y_i^w = \begin{cases} Work, & y_i^{w*} < 0 \\ Not\ work, & y_i^{w*} \geq 0 \end{cases} \quad (2)$$

$$h_i^{w*} = \mathbf{x}_i'\boldsymbol{\beta_{hx}^w} + \mathbf{z}_i'\boldsymbol{\beta_{hz}^w} + \varepsilon_i^w \quad (3)$$

$$\boldsymbol{H}_i = \begin{cases} Poor, & if\ h_i^{w*} \leq 0 \\ Fair, & if\ 0 < h_i^{w*} \leq c^w \\ Good, & if\ h_i^{w*} > c^w \end{cases} \quad (4)$$

where $y_i^{w*}$and h_i^{w*} are the latent variables for y_i^w and H_i, respectively; (u^w, ε^w) is independent of $\boldsymbol{z}$ and distributed as multivariate normal with mean zero and covariance matrix $\begin{pmatrix} 1 & \rho_w \\ \rho_w & 1 \end{pmatrix}$.

The full information likelihood based on the joint distribution of $(\boldsymbol{y^w}, \boldsymbol{H})$ given **x** and **z** was used for estimating all parameters in structure equations (1) – (4) simultaneously, which was described as the full information maximum likelihood (FIML) estimation method in Wooldridge

(2002). As pointed by Woodridge (2002), with these models, the average probability of work exit for given **x**, **z,** and $\boldsymbol{H}$ can be estimated by

$$P(y^w = \text{not work}) = \boldsymbol{\Phi}(\boldsymbol{H}'\boldsymbol{\beta}_{\boldsymbol{h}}^{\boldsymbol{w}} + x'\boldsymbol{\beta}_{\boldsymbol{x}}^{\boldsymbol{w}}) \quad (5),$$

where $\boldsymbol{\Phi}$ is the cumulative density function of the standard normal distribution.

Modeling for number of absent workdays due to health problems

Same method was used to address the endogeneity of SRH for absent workdays. While we used the Probit model for work exit, we employed the Tobit model for number of absent workdays, and the ordered Probit models for health status in 2011 and 2013. Tobit regression was used for the number of absent workdays due to health problems, as its value was truncated at zero with a large number of observations at the zero point. Similar to the work exit model, the number of absent workday models were specified as

$$y_i^{m*} = \boldsymbol{H}_i'\boldsymbol{\beta}_{\boldsymbol{h}}^{\boldsymbol{m}} + \mathbf{x}_i'\boldsymbol{\beta}_{\boldsymbol{x}}^{\boldsymbol{m}} + u_i^m \quad (6)$$

$$y_i^m = \begin{cases} y_i^{m*}, & y_i^{m*} > 0 \\ 0, & y_i^{m*} \le 0 \end{cases} \quad (7)$$

$$h_i^{m*} = \mathbf{x}_i'\boldsymbol{\beta}_{\boldsymbol{hx}}^{\boldsymbol{m}} + \mathbf{z}_i'\boldsymbol{\beta}_{\boldsymbol{hz}}^{\boldsymbol{m}} + \varepsilon_i^m \quad (8)$$

$$H_i = \begin{cases} Poor, & if\ h_i^{m*} \le 0 \\ Fair, & if\ 0 < h_i^{m*} \le c^m \\ Good, & if\ h_i^{m*} > c^m \end{cases}, \quad (9)$$

where y^m denotes the number of absent workdays, (u^m, ε^m) is independent of $\boldsymbol{z}$ and distributed as multivariate normal with mean zero and covariance matrix $\begin{pmatrix} \sigma^2 & \rho_m \\ \rho_m & 1 \end{pmatrix}$.

For given **x**, **z,** and $\boldsymbol{H}$, the expectation of y^mcan be estimated by

$$E(y^m|\mathbf{x},H) = P(y^m > 0|\mathbf{x},\boldsymbol{H}) \cdot E(y^m|\mathbf{x},H,y>0)$$
$$= \boldsymbol{\Phi}((\boldsymbol{H'\beta_h^m} + \mathbf{x'}\boldsymbol{\beta_x^m})/\sigma)(\boldsymbol{H'\beta_h^m} + \mathbf{x'}\boldsymbol{\beta_x^m}) + \sigma\boldsymbol{\phi}((\boldsymbol{H'\beta_h^m} + \mathbf{x'}\boldsymbol{\beta_x^m})/\sigma) \quad (10)$$

where $\boldsymbol{\phi}$ and $\boldsymbol{\Phi}$ are the density function and the cumulative density function of the standard normal distribution, respectively.

4. Test results for interaction terms

Parameter	Level	Estimate	StdErr	tValue	Probt
notwork.hstatus11	1-poor	0.341	0.216	1.575	0.115
notwork.hstatus11	2-fair	0.127	0.155	0.823	0.410
notwork.hstatus11	3-good	0.000			
notwork.male	1-male	-0.641	0.153	-4.176	0.000
notwork.male	2-female	0.000			
notwork.farm	0-nonfarm	0.081	0.157	0.517	0.605
notwork.farm	1-farm	0.000			
notwork.hs_male	0-poor,male	0.391	0.206	1.899	0.058
notwork.hs_male	1-fair,male	0.117	0.182	0.645	0.519
notwork.hs_male	2-Others	0.000			
notwork.hs_farm	0-poor, nonfarm	0.264	0.263	1.004	0.315
notwork.hs_farm	1-fair, nonfarm	0.320	0.185	1.728	0.084
notwork.hs_farm	2-Others	0.000			
notwork.hs_male_farm	0-poor,male, nonfarm	0.166	0.287	0.577	0.564
notwork.hs_male_farm	1-fair,male, nonfarm	0.265	0.148	1.793	0.073
notwork.hs_male_farm	2-good,male, nonfarm	0.221	0.205	1.076	0.282
notwork.hs_male_farm	3-Others	0.000			

5. Model parameters

Parameters (standard error) for work exit, Model I

Parameters	Level	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
notwork.Intercept		-3.953 (1.046)***	-3.552 (0.664)***	-2.724 (1.228)**	-5.527 (2.132)***	-3.802 (0.882)***	-2.583 (1.073)**
notwork.hstatus11	Poor	0.744 (0.259)***	0.577 (0.253)**	0.655 (0.287)**	0.753 (0.546)	0.810 (0.296)***	0.281 (0.447)
notwork.hstatus11	Fair	0.446 (0.156)***	0.306 (0.151)**	0.298 (0.182)	0.563 (0.305)*	0.300 (0.192)	0.251 (0.250)
notwork.hstatus11	Good						
notwork.age10		0.272 (0.195)	0.238 (0.102)**	0.136 (0.226)	0.521 (0.400)	0.129 (0.135)	0.348 (0.166)**
notwork.education	Illiterate	-0.107 (0.115)	-0.054 (0.180)	0.041 (0.126)	-0.400 (0.323)	-0.122 (0.221)	0.243 (0.340)
notwork.education	Lower than elementary school	-0.189 (0.129)	0.178 (0.114)	0.047 (0.143)	-0.708 (0.345)**	0.256 (0.135)*	0.049 (0.213)
notwork.education	Elementary school	-0.128 (0.107)	-0.023 (0.099)	0.031 (0.128)	-0.294 (0.222)	-0.020 (0.126)	-0.077 (0.171)
notwork.education	Middle school/ higher						
notwork.married	Yes	-0.180 (0.172)	-0.312 (0.168)*	-0.342 (0.221)	-0.067 (0.316)	-0.075 (0.221)	-0.604 (0.289)**
notwork.married	No						
notwork.lexpense11		0.173 (0.049)***	0.089 (0.043)**	0.115 (0.061)*	0.240 (0.096)**	0.166 (0.058)***	0.006 (0.071)
notwork.farm	Nor-farmer	0.275 (0.092)***	0.543 (0.084)***				
notwork.farm	Farmer						
hstatus11.Intercept		1.883 (0.767)**	0.419 (0.397)	1.593 (0.864)*	2.850 (1.691)*	0.369 (0.468)	0.848 (0.770)
hstatus11.age10		-0.249 (0.143)*	0.065 (0.062)	-0.095 (0.160)	-0.572 (0.316)*	0.044 (0.072)	0.106 (0.119)
hstatus11.education	Illiterate	-0.265 (0.083)***	-0.089 (0.103)	-0.220 (0.087)**	-0.507 (0.241)**	-0.038 (0.107)	-0.337 (0.276)
hstatus11.education	Lower than elementary school	-0.298 (0.091)***	-0.047 (0.073)	-0.286 (0.099)***	-0.247 (0.233)	-0.118 (0.079)	0.202 (0.168)
hstatus11.education	Elementary school	-0.025 (0.077)	-0.124 (0.058)**	-0.047 (0.087)	0.063 (0.173)	-0.161 (0.065)**	-0.062 (0.119)
hstatus11.education	Middle school/higher						
hstatus11.married	Yes	0.200 (0.134)	0.098 (0.114)	0.164 (0.173)	0.321 (0.248)	0.177 (0.125)	-0.115 (0.248)
hstatus11.married	No						
hstatus11.lexpense11		0.080 (0.036)**	0.099 (0.027)***	0.006 (0.042)	0.209 (0.078)***	0.105 (0.032)***	0.092 (0.050)*
hstatus11.farm	Nor-farmer	0.179 (0.067)***	0.255 (0.050)***				
hstatus11.farm	Farmer						
hstatus11.disabled11	Yes	-0.179 (0.110)	-0.278 (0.075)***	-0.130 (0.114)	-0.512 (0.298)*	-0.243 (0.082)***	-0.412 (0.169)**
hstatus11.disabled11	No						
hstatus11.chronic11		-0.364 (0.028)***	-0.335 (0.020)***	-0.316 (0.031)***	-0.509 (0.066)***	-0.319 (0.024)***	-0.369 (0.039)***
hstatus11.adl11		-0.165 (0.025)***	-0.238 (0.026)***	-0.175 (0.027)***	-0.161 (0.059)***	-0.234 (0.027)***	-0.230 (0.065)***
_Limit2.hstatus11		1.742 (0.049)***	1.642 (0.039)***	1.611 (0.052)***	2.085 (0.120)***	1.577 (0.043)***	1.785 (0.081)***
_Rho		0.254 (0.098)***	0.022 (0.099)	0.287 (0.110)***	0.176 (0.194)	0.182 (0.120)	-0.129 (0.164)

*** P≤0.1; ** P≤0.05; ***P≤0.01**

Parameters (standard error) for work exit, Model II

Parameters	Level	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
notwork.Intercept		-3.450 (1.045)***	-3.675 (0.648)***	-2.261 (1.231)*	-5.014 (2.135)**	-4.073 (0.896)***	-2.727 (1.028)***
notwork.chstatus	Poor-Poor	0.753 (0.202)***	1.142 (0.204)***	0.752 (0.209)***	0.472 (0.633)	1.265 (0.239)***	1.163 (0.411)***
notwork.chstatus	Good/Fair-Poor	0.621 (0.171)***	0.865 (0.161)***	0.763 (0.173)***	-0.135 (0.507)	1.097 (0.194)***	0.681 (0.300)**
notwork.chstatus	Poor-Good/Fair	0.358 (0.156)**	0.471 (0.165)***	0.415 (0.168)**	0.043 (0.386)	0.419 (0.199)**	0.895 (0.331)***
notwork.chstatus	Good/Fair-Good/Fair						
notwork.age10		0.239 (0.194)	0.251 (0.102)**	0.075 (0.227)	0.582 (0.398)	0.180 (0.139)	0.353 (0.163)**
notwork.education	Illiterate	-0.103 (0.115)	-0.063 (0.178)	0.025 (0.126)	-0.376 (0.325)	-0.157 (0.225)	0.219 (0.328)
notwork.education	Lower than elementary school	-0.149 (0.127)	0.120 (0.114)	0.049 (0.140)	-0.633 (0.347)*	0.275 (0.138)**	-0.034 (0.215)
notwork.education	Elementary school	-0.126 (0.108)	-0.060 (0.099)	0.024 (0.128)	-0.354 (0.225)	-0.079 (0.130)	-0.063 (0.168)
notwork.education	Middle school/ higher						
notwork.married	Yes	-0.166 (0.171)	-0.280 (0.167)*	-0.328 (0.220)	-0.158 (0.322)	-0.073 (0.225)	-0.542 (0.285)*
notwork.married	No						
notwork.lexpense11		0.152 (0.049)***	0.098 (0.043)**	0.102 (0.060)*	0.198 (0.094)**	0.164 (0.060)***	0.022 (0.068)
notwork.farm	Non-farmer	0.317 (0.092)***	0.589 (0.082)***				
notwork.farm	Farmer						
chstatus.Intercept		3.749 (0.894)***	0.439 (0.484)	4.128 (0.964)***	3.957 (2.197)*	0.459 (0.537)	0.416 (1.064)
chstatus.age10		-0.417 (0.166)**	0.219 (0.076)***	-0.398 (0.177)**	-0.597 (0.408)	0.240 (0.083)***	0.151 (0.164)
chstatus.education	Illiterate	-0.141 (0.095)	-0.091 (0.122)	-0.150 (0.097)	-0.086 (0.315)	-0.088 (0.124)	-0.247 (0.353)
chstatus.education	Lower than elementary school	-0.073 (0.104)	-0.160 (0.085)*	-0.104 (0.109)	0.195 (0.305)	-0.140 (0.092)	-0.193 (0.206)
chstatus.education	Elementary school	0.017 (0.091)	-0.243 (0.068)***	-0.013 (0.099)	0.063 (0.230)	-0.286 (0.073)***	-0.146 (0.164)
chstatus.education	Middle school/ higher						
chstatus.married	Yes	0.282 (0.148)*	0.109 (0.130)	0.153 (0.181)	0.483 (0.289)*	0.102 (0.137)	0.244 (0.316)
chstatus.married	No						
chstatus.lexpense11		0.009 (0.043)	0.110 (0.034)***	-0.035 (0.046)	0.123 (0.103)	0.088 (0.038)**	0.189 (0.076)**
chstatus.farm	Non-farmer	0.383 (0.082)***	0.288 (0.064)***				
chstatus.farm	Farmer						
chstatus.disabled11	Yes	0.003 (0.185)	-0.163 (0.119)	-0.062 (0.188)	0.311 (0.537)	-0.167 (0.126)	-0.009 (0.288)
chstatus.disabled11	No						
chstatus.chronic11		-0.028 (0.037)	-0.054 (0.030)*	-0.004 (0.039)	-0.111 (0.095)	-0.015 (0.033)	-0.135 (0.065)**
chstatus.adl11		-0.131 (0.025)***	-0.119 (0.024)***	-0.141 (0.027)***	-0.109 (0.064)*	-0.124 (0.025)***	-0.121 (0.078)
chstatus.disabled13	Yes	-0.276 (0.158)*	-0.198 (0.099)**	-0.117 (0.160)	-1.079 (0.460)**	-0.167 (0.106)	-0.307 (0.231)
chstatus.disabled13	No						
chstatus.chronic13		-0.302 (0.032)***	-0.332 (0.029)***	-0.330 (0.036)***	-0.240 (0.074)***	-0.326 (0.032)***	-0.338 (0.061)***
chstatus.adl13		-0.146 (0.024)***	-0.142 (0.019)***	-0.154 (0.025)***	-0.130 (0.070)*	-0.144 (0.020)***	-0.166 (0.063)***
_Limit2.chstatus		0.578 (0.041)***	0.668 (0.039)***	0.549 (0.042)***	0.686 (0.117)***	0.648 (0.042)***	0.736 (0.090)***
_Limit3.chstatus		0.967 (0.048)***	1.063 (0.044)***	0.974 (0.050)***	0.998 (0.127)***	1.097 (0.049)***	1.004 (0.097)***
_Rho		0.351 (0.082)***	0.256 (0.084)***	0.377 (0.087)***	0.104 (0.245)	0.226 (0.101)**	0.443 (0.160)***

*** P≤0.1; ** P≤0.05; ***P≤0.01**

Parameters (standard error) for absent workdays, Model I

Parameters	Level	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
missdays_total.Intercept		72.93 (66.39)	-108.78 (36.03)***	19.19 (74.27)	55.22 (144.86)	-102.70 (41.58)**	-133.37 (69.78)*
missdays_total.hstatus11	Poor	101.39 (17.00)***	135.61 (13.50)***	105.52 (17.71)***	72.05 (40.43)*	131.60 (16.20)***	153.55 (25.85)***
missdays_total.hstatus11	Fair	46.67 (10.19)***	65.59 (7.99)***	48.21 (10.79)***	24.87 (22.84)	64.12 (9.71)***	69.65 (14.16)***
missdays_total.hstatus11	Good						
missdays_total.age10		-25.53 (12.50)**	-1.34 (5.46)	-20.21 (13.60)	-5.83 (28.81)	-3.45 (6.24)	2.09 (10.44)
missdays_total.education	Illiterate	6.25 (7.05)	18.76 (8.41)**	7.52 (7.36)	-27.34 (23.51)	20.06 (8.78)**	6.92 (22.91)
missdays_total.education	Lower than elementary school	5.45 (7.66)	1.94 (6.37)	-0.02 (8.39)	21.95 (17.48)	4.63 (6.90)	-12.93 (15.28)
missdays_total.education	Elementary school	10.14 (6.50)	11.03 (5.04)**	5.05 (7.27)	28.17 (13.67)**	5.87 (5.71)	26.08 (9.85)***
missdays_total.education	Middle school/ higher						
missdays_total.married	Yes	-25.46 (11.03)**	-12.88 (9.60)	-3.12 (15.00)	-42.20 (18.43)**	-13.81 (10.22)	-5.99 (25.41)
missdays_total.married	No						
missdays_total.lexpense11		-0.44 (3.20)	4.68 (2.43)*	0.37 (3.56)	-9.77 (7.62)	5.55 (2.90)*	2.19 (4.22)
missdays_total.farm	Nor-farmer	-30.57 (6.28)***	-26.56 (4.92)***				
missdays_total.farm	Farmer						
_Sigma.missdays_total		74.26 (2.94)***	79.21 (2.72)***	77.39 (3.34)***	62.89 (6.29)***	81.72 (3.06)***	69.81 (5.87)***
hstatus11.Intercept		2.06 (0.84)**	0.28 (0.42)	2.00 (0.94)**	2.40 (1.89)	0.18 (0.49)	0.77 (0.85)
hstatus11.age10		-0.27 (0.16)*	0.08 (0.06)	-0.11 (0.17)	-0.64 (0.35)*	0.04 (0.07)	0.16 (0.13)
hstatus11.education	Illiterate	-0.32 (0.09)***	-0.11 (0.11)	-0.26 (0.09)***	-0.45 (0.28)	-0.04 (0.11)	-0.47 (0.31)
hstatus11.education	Lower than elementary school	-0.33 (0.10)***	-0.05 (0.08)	-0.29 (0.11)***	-0.32 (0.26)	-0.08 (0.08)	0.08 (0.18)
hstatus11.education	Elementary school	-0.08 (0.08)	-0.13 (0.06)**	-0.03 (0.09)	-0.19 (0.19)	-0.17 (0.07)**	-0.06 (0.13)
hstatus11.education	Middle school/higher						
hstatus11.married	Yes	0.19 (0.15)	0.09 (0.12)	0.05 (0.19)	0.50 (0.28)*	0.18 (0.13)	-0.23 (0.30)
hstatus11.married	No						
hstatus11.lexpense11		0.08 (0.04)**	0.11 (0.03)***	-0.02 (0.05)	0.30 (0.09)***	0.13 (0.03)***	0.09 (0.05)*
hstatus11.farm	Nor-farmer	0.20 (0.07)***	0.29 (0.05)***				
hstatus11.farm	Farmer						
hstatus11.disabled11	Yes	-0.13 (0.12)	-0.21 (0.08)***	-0.04 (0.12)	-0.52 (0.33)	-0.23 (0.08)***	-0.15 (0.18)
hstatus11.disabled11	No						
hstatus11.chronic11		-0.40 (0.03)***	-0.35 (0.02)***	-0.36 (0.03)***	-0.55 (0.08)***	-0.33 (0.02)***	-0.40 (0.04)***
hstatus11.adl11		-0.16 (0.03)***	-0.22 (0.03)***	-0.18 (0.03)***	-0.11 (0.08)	-0.22 (0.03)***	-0.21 (0.07)***
_Limit2.hstatus11		1.75 (0.05)***	1.64 (0.04)***	1.63 (0.06)***	2.09 (0.14)***	1.59 (0.05)***	1.75 (0.09)***
_Rho		0.31 (0.08)***	0.44 (0.05)***	0.38 (0.08)***	0.02 (0.22)	0.43 (0.07)***	0.52 (0.09)***

*** P≤0.1; ** P≤0.05; ***P≤0.01**

Parameters (standard error) for absent workdays, Model II

Parameters	Level	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
missdays_total.Intercept		130.62 (64.54)**	-96.15 (33.94)***	112.25 (71.52)	62.70 (145.45)	-100.64 (39.09)**	-111.95 (65.49)*
missdays_total.chstatus	Poor-Poor	99.55 (12.27)***	130.13 (10.91)***	109.38 (12.00)***	33.51 (42.47)	132.86 (12.40)***	142.50 (22.46)***
missdays_total.chstatus	Good/Fair-Poor	78.13 (10.02)***	93.61 (8.35)***	82.18 (9.87)***	29.85 (29.01)	100.77 (9.71)***	87.96 (15.53)***
missdays_total.chstatus	Poor-Good/Fair	43.48 (8.82)***	52.31 (7.59)***	36.60 (9.08)***	53.28 (22.65)**	54.17 (8.18)***	59.26 (19.42)***
missdays_total.chstatus	Good/Fair-Good/Fair						
missdays_total.age10		-29.72 (12.05)**	2.37 (5.21)	-31.29 (13.11)**	-2.79 (28.04)	3.34 (5.95)	-1.94 (9.88)
missdays_total.education	Illiterate	7.66 (6.71)	15.18 (7.96)*	5.93 (6.95)	-22.74 (23.76)	13.57 (8.36)	11.21 (21.47)
missdays_total.education	Lower than elementary school	11.84 (7.17)*	-1.20 (6.08)	4.09 (7.80)	31.33 (17.19)*	2.62 (6.58)	-22.65 (14.64)
missdays_total.education	Elementary school	12.80 (6.26)**	6.75 (4.83)	4.73 (6.95)	33.47 (13.53)**	-1.04 (5.49)	28.62 (9.30)***
missdays_total.education	Middle school/ higher						
missdays_total.married	Yes	-25.24 (10.56)**	-12.19 (9.12)	-10.03 (14.26)	-40.70 (18.53)**	-16.60 (9.64)*	13.85 (24.93)
missdays_total.married	No						
missdays_total.lexpense11		-2.70 (3.09)	5.14 (2.32)**	-0.84 (3.41)	-11.23 (7.19)	5.47 (2.76)**	3.61 (3.98)
missdays_total.farm	Non-farmer	-26.62 (6.02)***	-33.70 (4.59)***				
missdays_total.farm	Farmer						
_Sigma.missdays_total		71.08 (2.62)***	73.76 (2.22)***	73.34 (2.84)***	62.44 (6.33)***	76.62 (2.49)***	62.98 (4.66)***
chstatus.Intercept		3.83 (0.98)***	0.24 (0.51)	4.40 (1.06)***	3.26 (2.45)	0.13 (0.56)	0.54 (1.17)
chstatus.age10		-0.36 (0.18)**	0.23 (0.08)***	-0.35 (0.19)*	-0.47 (0.46)	0.24 (0.09)***	0.18 (0.18)
chstatus.education	Illiterate	-0.15 (0.10)	-0.19 (0.12)	-0.18 (0.10)*	0.16 (0.39)	-0.17 (0.13)	-0.47 (0.38)
chstatus.education	Lower than elementary school	-0.06 (0.11)	-0.11 (0.09)	-0.16 (0.12)	0.56 (0.38)	-0.08 (0.10)	-0.28 (0.23)
chstatus.education	Elementary school	0.02 (0.10)	-0.24 (0.07)***	-0.01 (0.11)	-0.08 (0.24)	-0.32 (0.08)***	-0.01 (0.18)
chstatus.education	Middle school/ higher						
chstatus.married	Yes	0.17 (0.17)	0.08 (0.14)	-0.11 (0.22)	0.62 (0.33)*	0.06 (0.14)	0.39 (0.37)
chstatus.married	No						
chstatus.lexpense11		-0.02 (0.05)	0.14 (0.04)***	-0.06 (0.05)	0.12 (0.12)	0.15 (0.04)***	0.13 (0.08)
chstatus.farm	Non-farmer	0.38 (0.09)***	0.20 (0.07)***				
chstatus.farm	Farmer						
chstatus.disabled11	Yes	0.19 (0.20)	-0.04 (0.13)	0.18 (0.20)	0.28 (0.56)	-0.03 (0.13)	0.14 (0.34)
chstatus.disabled11	No						
chstatus.chronic11		-0.04 (0.04)	-0.07 (0.03)**	-0.03 (0.04)	-0.07 (0.11)	-0.04 (0.03)	-0.14 (0.07)**
chstatus.adl11		-0.10 (0.03)***	-0.13 (0.03)***	-0.13 (0.03)***	0.03 (0.11)	-0.12 (0.03)***	-0.21 (0.09)**
chstatus.disabled13	Yes	-0.42 (0.17)**	-0.25 (0.10)**	-0.25 (0.17)	-1.19 (0.47)**	-0.27 (0.11)**	-0.23 (0.27)
chstatus.disabled13	No						
chstatus.chronic13		-0.32 (0.04)***	-0.33 (0.03)***	-0.36 (0.04)***	-0.25 (0.09)***	-0.32 (0.03)***	-0.34 (0.07)***
chstatus.adl13		-0.17 (0.03)***	-0.13 (0.02)***	-0.20 (0.03)***	-0.15 (0.09)*	-0.13 (0.02)***	-0.22 (0.10)**
_Limit2.chstatus		0.57 (0.04)***	0.66 (0.04)***	0.53 (0.05)***	0.76 (0.14)***	0.63 (0.05)***	0.75 (0.10)***
_Limit3.chstatus		0.97 (0.05)***	1.07 (0.05)***	0.97 (0.05)***	1.09 (0.15)***	1.11 (0.05)***	1.00 (0.11)***
_Rho		0.31 (0.07)***	0.35 (0.05)***	0.40 (0.06)***	-0.14 (0.24)	0.37 (0.05)***	0.44 (0.10)***

*** P≤0.1; ** P≤0.05; ***P≤0.01**

6. Sensitivity analyses

Analysis results without considering weights

Table 1. Demographic and health characteristics in 2011, mean (Standard Deviation) or N (%) (No weight)

Variables	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male Farmers (5)	Male non-farmers (6)
Sample N	1652	2680	1256	396	1874	806
Age, years	48.12 (2.06)	51.25 (3.77)	48.21 (2.07)	47.86 (1.99)	51.39 (3.81)	50.93 (3.67)
Education						
Illiterate	344 (20.82)	158 (5.90)	319 (25.40)	25 (6.31)	135 (7.20)	23 (2.85)
Lower than elementary school	250 (15.13)	337 (12.57)	218 (17.36)	32 (8.08)	273 (14.57)	64 (7.94)
Elementary school	369 (22.34)	574 (21.42)	308 (24.52)	61 (15.40)	448 (23.91)	126 (15.63)
Middle school or higher	689 (41.71)	1611 (60.11)	411 (32.72)	278 (70.20)	1018 (54.32)	593 (73.57)
Married	1587 (96.07)	2573 (96.01)	1214 (96.66)	373 (94.19)	1788 (95.41)	785 (97.39)
Household expenditures monthly	2403.42 (3072.13)	2472.03 (3887.91)	2041.30 (2555.22)	3551.97 (4118.78)	2005.07 (2631.23)	3557.75 (5701.61)
Health Status						
Good	424 (25.67)	884 (32.99)	284 (22.61)	140 (35.35)	544 (29.03)	340 (42.18)
Fair	872 (52.78)	1372 (51.19)	665 (52.95)	207 (52.27)	982 (52.40)	390 (48.39)
Poor	356 (21.55)	424 (15.82)	307 (24.44)	49 (12.37)	348 (18.57)	76 (9.43)
Disable	148 (8.96)	315 (11.75)	124 (9.87)	24 (6.06)	251 (13.39)	64 (7.94)
No. of chronic diseases (range 0-14)	1.06 (1.23)	1.03 (1.20)	1.12 (1.27)	0.84 (1.06)	1.07 (1.21)	0.93 (1.16)
Functional limitations (range 0-18)	0.53 (1.42)	0.36 (1.12)	0.63 (1.50)	0.24 (1.09)	0.44 (1.23)	0.19 (0.78)

Table 2. Work exit (N (%) of not working) and number of absent workdays (Mean (SE)) in 2013 by self-rated health (No weight)

	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male Farmers (5)	Male non-farmers (6)
Probability of work exit						
Overall	202 (12.23)	188 (7.01)	129 (10.27)	73 (18.43)	85 (4.54)	103 (12.78)
Self-rated health in 2011						
Good	52 (12.26)	50 (5.66)	28 (9.86)	24 (17.14)	18 (3.31)	32 (9.41)
Fair	106 (12.16)	90 (6.56)	67 (10.08)	39 (18.84)	38 (3.87)	52 (13.33)
Poor	44 (12.36)	48 (11.32)	34 (11.07)	10 (20.41)	29 (8.33)	19 (25.00)
Self-rated health in 2013						
Good	46 (12.17)	46 (5.87)	21 (8.30)	25 (20.00)	14 (2.81)	32 (11.23)
Fair	106 (11.61)	85 (5.77)	68 (9.76)	38 (17.59)	33 (3.18)	52 (11.93)
Poor	50 (13.85)	57 (13.48)	40 (13.07)	10 (18.18)	38 (11.24)	19 (22.35)
Change of self-rated health 2011 – 2013						
Good/Fair – Good/Fair	130 (11.61)	113 (5.61)	72 (8.93)	58 (18.47)	38 (2.85)	75 (11.05)
Poor – Good/Fair	22 (12.87)	18 (7.38)	17 (11.81)	5 (18.52)	9 (4.46)	9 (21.43)
Good/Fair – Poor	28 (15.91)	27 (11.11)	23 (16.08)	5 (15.15)	18 (9.38)	9 (17.65)
Poor – Poor	22 (11.89)	30 (16.67)	17 (10.43)	5 (22.73)	20 (13.70)	10 (29.41)
Number of absent workdays						
Overall	14.18 (1.02)	12.02 (0.75)	16.19 (1.24)	7.21 (1.46)	14.68 (0.98)	5.26 (0.90)
Self-rated health in 2011						
Good	8.05 (1.47)	6.94 (1.01)	10.00 (1.96)	3.75 (1.82)	10.04 (1.57)	1.68 (0.38)
Fair	12.18 (1.23)	10.66 (0.85)	13.82 (1.48)	6.40 (1.86)	12.53 (1.08)	5.44 (1.13)
Poor	26.76 (3.18)	28.08 (3.25)	27.52 (3.49)	21.41 (7.09)	28.83 (3.54)	23.85 (8.32)
Self-rated health in 2013						
Good	6.63 (1.35)	4.74 (0.95)	7.31 (1.69)	5.03 (2.15)	6.39 (1.39)	1.62 (0.68)
Fair	10.64 (1.07)	9.51 (0.73)	11.77 (1.26)	6.70 (1.91)	11.54 (0.94)	4.18 (0.89)
Poor	32.14 (3.50)	36.69 (3.63)	35.11 (3.95)	14.38 (5.60)	39.10 (4.12)	25.84 (7.21)
Change of self-rated health 2011 – 2013						
Good/Fair – Good/Fair	8.63 (0.85)	7.00 (0.56)	9.93 (1.05)	4.93 (1.37)	8.90 (0.77)	2.92 (0.56)
Poor – Good/Fair	14.90 (3.16)	14.97 (2.73)	14.08 (3.43)	19.50 (8.33)	16.27 (3.04)	7.28 (5.66)
Good/Fair – Poor	25.67 (4.48)	28.71 (3.87)	29.57 (5.35)	8.93 (4.91)	32.27 (4.62)	14.02 (4.99)
Poor – Poor	38.30 (5.31)	48.42 (6.82)	39.87 (5.72)	24.20 (12.87)	48.71 (7.44)	46.91 (17.37)

Table 3. Model parameters for work exit and absent workdays (No weight)

Model [a]	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
Probability of work exit						
I - 2011 Health status [b]						
Poor	0.817 (0.249)***	0.834 (0.252)***	0.817 (0.290)***	0.734 (0.470)	0.835 (0.318)***	0.837 (0.395)**
Fair	0.439 (0.154)***	0.310 (0.157)**	0.430 (0.183)**	0.411 (0.283)	0.294 (0.206)	0.297 (0.233)
II – Health status change [c]						
Poor-Poor	0.765 (0.199)***	1.338 (0.188)***	0.806 (0.215)***	0.290 (0.549)	1.285 (0.229)***	1.564 (0.320)***
Good/Fair-Poor	0.732 (0.164)***	0.951 (0.166)***	0.840 (0.174)***	-0.034 (0.465)	0.967 (0.197)***	1.052 (0.289)***
Poor-Good/Fair	0.462 (0.151)***	0.595 (0.160)***	0.523 (0.168)***	0.033 (0.353)	0.433 (0.199)**	1.130 (0.285)***
Number of absent workdays						
I - 2011 Health status [b]						
Poor	114.76 (16.75)***	149.06 (14.45)***	119.13 (18.66)***	77.31 (35.92)**	148.62 (17.19)***	158.01 (27.55)***
Fair	52.62 (10.17)***	70.31 (8.49)***	54.63 (11.34)***	29.71 (21.53)	69.92 (10.14)***	70.00 (15.36)***
II – Health status change [c]						
Poor-Poor	106.13 (11.96)***	138.59 (10.80)***	110.14 (12.61)***	49.85 (38.52)	138.18 (12.27)***	156.50 (23.29)***
Good/Fair-Poor	74.42 (9.92)***	100.98 (8.51)***	76.97 (10.42)***	30.00 (30.18)	102.99 (9.61)***	100.02 (18.55)***
Poor-Good/Fair	46.76 (8.82)***	54.55 (7.63)***	39.32 (9.56)***	62.34 (22.23)***	55.55 (8.35)***	60.16 (20.07)***

[a]: Model I includes 2011 health status (two-year lagged); Model II includes the changes of health status from 2011 to 2013.
[b]: The reference group for health status is Good.
[c]: The reference group for the change of health status is Good/Fair in 2011 to Good/Fair in 2013.
* P≤0.1; ** P≤0.05; ***P≤0.01

Table 4. Expected probability of work exit and expected number of absent workdays by 2011 health status (No weight)

2011 Health Status	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
Probability of work exit						
Poor	0.235	0.168	0.202	0.324	0.119	0.291
Fair	0.138	0.073	0.111	0.218	0.043	0.140
Good	0.065	0.041	0.050	0.118	0.022	0.085
Number of absent workdays						
Poor	47.02	59.78	52.04	24.18	64.75	54.58
Fair	17.01	18.95	19.13	8.22	21.64	12.04
Good	5.26	4.26	5.98	3.49	5.26	1.90

Table 5. Expected probability of work exit and expected number of absent workdays by the change of health status over time (No weight)

HS Change	Female (1)	Male (2)	Female farmers (3)	Female non-farmers (4)	Male farmers (5)	Male non-farmers (6)
Probability of work exit						
Poor-Poor	0.279	0.332	0.247	0.265	0.238	0.594
Good/Fair-Poor	0.268	0.213	0.257	0.171	0.153	0.395
Poor-Good/Fair	0.189	0.130	0.167	0.189	0.060	0.425
Good/Fair-Good/Fair	0.091	0.046	0.068	0.180	0.024	0.097
Number of absent workdays						
Poor-Poor	59.84	77.93	66.80	19.26	83.98	78.65
Good/Fair-Poor	38.79	49.97	43.52	12.43	56.69	36.74
Poor-Good/Fair	24.65	24.57	23.76	24.73	28.63	17.39
Good/Fair-Good/Fair	9.49	8.08	10.77	5.67	9.78	3.71

Analysis results without age restriction for farmers

Table 1. Demographic and health characteristics in 2011 (No age restriction)

Variables	Female farmers (3)	Female farmers without restriction (3)	Male Farmers (5)	Male farmers without restriction (5)
Sample N	1256	3625	1874	3839
Age, years	48.16 (0.06)	56.35 (0.16)	51.28 (0.1)	58.09 (0.17)
Education				
Illiterate	319 (26.01)	1640 (45.93)	135 (7.46)	520 (13.21)
Lower than elementary school	218 (17.32)	719 (19.36)	273 (14.93)	784 (21.00)
Elementary school	308 (24.73)	666 (18.45)	448 (24.31)	1148 (30.31)
Middle school or higher	411 (31.93)	600 (16.26)	1018 (53.3)	1387 (35.48)
Married	1214 (96.3)	3309 (90.58)	1788 (94.81)	3555 (92.10)
Household expenditures monthly	2120.78 (80.98)	1805.23 (43.29)	2104.85 (86.05)	1850.99 (51.04)
Self-rated health				
Good	284 (22.94)	727 (20.46)	544 (30.82)	977 (26.97)
Fair	665 (52.12)	1833 (50.54)	982 (50.28)	1991 (50.76)
Poor	307 (24.95)	1065 (29.01)	348 (18.9)	871 (22.26)
Disable	124 (10.12)	532 (14.20)	251 (13.29)	700 (17.51)
No. of chronic diseases (range 0-14)	1.1 (0.04)	1.30 (0.02)	1.07 (0.03)	1.22 (0.02)
Functional limitations (range 0-18)	0.63 (0.05)	1.00 (0.04)	0.44 (0.03)	0.65 (0.03)
Notes: the proportions in parentheses are weighted proportions; the means are weighted means, and standard errors of the mean are in parentheses.				

Table 2. Model parameters for work exit and absent workdays (No age restriction)

Model [a]	Female farmers (3)	Female farmers without restriction (3)	Male farmers (5)	Male farmers without restriction (5)
Probability of work exit				
I - 2011 Health status [b]				
Poor	0.655 (0.287)**	0.597 (0.159)***	0.810 (0.296)***	0.898 (0.159)***
Fair	0.298 (0.182)	0.274 (0.102)***	0.300 (0.192)	0.526 (0.102)***
II – Health status change [c]				
Poor-Poor	0.752 (0.209)***	0.954 (0.113)***	1.265 (0.239)***	1.087 (0.125)***
Good/Fair-Poor	0.763 (0.173)***	0.760 (0.096)***	1.097 (0.194)***	1.088 (0.104)***
Poor-Good/Fair	0.415 (0.168)**	0.321 (0.091)***	0.419 (0.199)**	0.341 (0.102)***
Number of absent workdays				
I - 2011 Health status [b]				
Poor	105.52 (17.71)***	135.72 (11.81)***	131.60 (16.20)***	118.97 (10.91)***
Fair	48.21 (10.79)***	64.21 (7.38)***	64.12 (9.71)***	52.93 (6.68)***
II – Health status change [c]				
Poor-Poor	109.38 (12.00)***	137.15 (8.45)***	132.86 (12.40)***	130.68 (8.86)***
Good/Fair-Poor	82.18 (9.87)***	96.67 (7.11)***	100.77 (9.71)***	104.75 (7.38)***
Poor-Good/Fair	36.60 (9.08)***	53.80 (6.05)***	54.17 (8.18)***	58.72 (6.01)***

[a]: Model I includes 2011 health status (two-year lagged); Model II includes the changes of health status from 2011 to 2013.
[b]: The reference group for health status is Good.
[c]: The reference group for the change of health status is Good/Fair in 2011 to Good/Fair in 2013.
* P≤0.1; ** P≤0.05; ***P≤0.01

7. Reasons of not working, N (weighted %)

Age Restriction*	Reasons	Female farmers	Female non-farmers	Male farmers	Male non-farmers
Restricted	**Health**	**30 (24.53)**	**6 (4.89)**	**32 (39.71)**	**18 (19.60)**
Restricted	**Retired**	**1 (1.91)**	**20 (26.80)**	**2 (2.25)**	**9 (7.60)**
Restricted	**Others**	**97 (73.56)**	**44 (68.32)**	**50 (58.04)**	**75 (72.81)**
Unrestricted	**Health**	**175 (33.26)**		**175 (40.81)**	
Unrestricted	**Retired**	**7 (1.56)**		**17 (5.14)**	
Unrestricted	**Others**	**347 (65.18)**		**193 (54.05)**	

*** Restricted – age between 45 and 55 years for women or between 45 and 60 years for men**

Unrestricted - including all older farmers without applying the age restriction